

phant; but it is dexterously turned upwards and to one side when he is at the breast; and the usual position is standing at right angles with the mother. The young one generally sleeps under the mother's belly, lying on his side, his legs stretched out straight. He not unfrequently lies down under other Elephants, and is quite fearless among them, they always treating him kindly, never hurting him. "The smallest Bucha may go up to the largest male, even when he is Musth*, and he will be kindly treated." The large one will welcome him with his trunk, laying it over him and smelling him.

2. Note on the Sublingual Aperture and Sphincter of the Gular Pouch in *Otis tarda*. By JAMES MURIE, M.D., F.L.S., Prosector to the Society.

The following memoranda may be regarded as addenda to the paper on the gular pouch of *Otis kori* and *O. australis*, previously communicated by me to the Society (see P. Z. S. 1868, p. 471). Since then an opportunity has been afforded me of examining a male specimen of the Great Bustard at least six years old, judging from the time the bird had been in the Society's possession. A gular pouch was present, as described underneath.

On looking into the mouth of the bird while the tongue lies between the rami of the lower mandible, no opening into the gular pouch is seen; but when the tongue is raised and the parts held as in the act of gaping an aperture easily admitting one's finger is observed. This is situated beneath, and almost an inch behind, the tongue itself; in fact it lies underneath the upper larynx, occupying the space between it and the submandibular deep and cutaneous tissues. In the stretched condition of the parts above spoken of (displayed in the figure, p. 141), the said aperture (*a*) is oval in form, assuming almost an elliptical figure if its raised whitish marginal membrane is followed. This marginal fold of membrane or lip (*l*) is, indeed, the true boundary of the aperture itself; but as it is partly adherent to the tissue beneath the uro-hyal and to the subcutaneous textures between the rami of the lower mandible, it causes the opening to appear almost arched instead of an acute ellipse, as it truly is when the tongue is pulled out and the skin near the "beard" is held tense. A second short raised membranous fold (*f*) proceeds at an acute angle outwards from the middle of each outer side of the former one and goes to the tissues covering the muscles lying beneath the thyro-hyals. These two latter duplications of the faucial membrane permit of stretching of the parts when the thyro-hyals are by any means thrown outwards; and they may also influence the tonicity of the membrane of the aperture itself when its marginal lips

* The tame males, and males driven out of a herd, are subject to fits of temporary fury, or madness. In this state they are said to be "Musth."

approach. The lips of the opening into the gular pouch, then, may be said in strict language to be composed of a fold of the sub-laryngeal membrane stretching between the uro-hyal and the skin of throat.



Fore-shortened and reduced view of Bustard's head, to show the gular aperture under the upper larynx.

T. Tongue dragged upwards and outwards. *a.* Apertures of gular pouch. *l.* Lip or marginal fold. *f.* Fold of membrane. *s.g.* Sublingual gland.

The glandulæ sublinguales (*s.g.*) are elongated flat bodies of considerable size lying just within each dentary portion of the mandible. Between these, and occupying the middle third, is the skin of the throat, the roots of the feathers being barely hidden, when looking into the mouth, by the thin almost transparent subcutaneous tissue.

In the present instance the gular pouch was 4 inches long, and held 2 ounces of water, as it remained in position in the neck of the bird. The thin walls seemed but a continuation or duplicature inwards of the sub-laryngeal fibro-mucous tissue or membrane; the same as that constituting its free marginal aperture.

As regards the thin muscular strata around the pouch, these, I apprehend, are slightly different from what I found and figured in *Otis kori* (see P. Z. S. 1868, p. 472). A film of platysma undoubtedly covers the lower part of the sac; a considerable number of small vessels pass beneath and on the surface of the platysma, and as they proceed to the base of the skull run between its internal border and part of the muscle next to be described. What appears

to represent the so-called stylo-hyoideus is here, as in many other birds, divisible into three portions. The posterior is a broad but thin layer; this as it diverges from the common cranial origin proceeds backwards and downwards, and intermingling along with the platysma they both pass round and in front of the gular pouch. The middle one, also broad and thin, passes over the upper or deep surface of the pouch. The third division, long, narrow, and roundish, runs forwards to the tongue. This tripartite but singly named muscle may, indeed, be representative of the stylo-hyoid, stylo-pharyngeus, and stylo-glossus. Besides these, a broadish band of very delicate but transversely striped fibres mingling with the tissue of the neck of the pouch itself surrounds it; this I take to be part of the superior constrictor of the pharynx, which encircles the invaginated duplicature of the sublingual or sublaryngeal membrane differentiated into gular pouch during later life in the male Bustards.

The gular pouch, in fact, appears to me but an infolding of the membrane below the upper larynx, developed to a large size in male Bustards only after they attain ripe or old age. This view, therefore, accounts for its absence in the young, its moderate size in adult, and its increased capaciousness in old birds.

The present note serves to show:—1. That the gular aperture is rather sublaryngeal than sublingual. 2. That in a bird six years old it has only reached a very moderate size, compared with what it ultimately attains, according to several observers. 3. That there is good reason for believing in the so-called sphincter of the pouch, but that this is merely a lesser or greater development of the fibres of the superior constrictor of the pharynx and stylo-pharyngeus, and not a specialized structure alone adapted for the office it here subserves.

3. Remarks upon the Habits of the Hornbills (*Buceros*).

By A. D. BARTLETT, Superintendent of the Society's Gardens.

A few weeks after the Wrinkled Hornbill (*Buceros corrugatus*) was received in the Society's Gardens*, the keeper called my attention to a queer-looking fig-like substance he had picked up in the aviary. Struck with its appearance, I took it home and endeavoured to examine it carefully, and opened its closely folded mouth. I found this fig-like bag contained plums or grapes well packed together, the wrapper or envelope looking much like the inner lining of a gizzard, somewhat tough, elastic, and gelatinous. Almost alarmed for the safety of the bird that had thrown it up, and at the same time having some doubt as to its real nature, I at once sought the assistance of our Prosector, Dr. Murie, handing him the specimen and telling him its history.

Dr. Murie's report was as follows:—

“On examination of the specimen I found, as was at first suggested in joke, that the bag did absolutely consist of nothing else

* The specimen was purchased March 27, 1868.